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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,023	12/18/2001	Jeremy A. Theil	10010264-1	5823

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AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
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EXAMINER

NGUYEN, KHIEM D

ART UNIT PAPER NUMBER

2823

DATE MAILED: 07/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/032,023

Applicant(s)

THEIL ET AL

Examiner

Khiem D Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art of this application (AAPA) in view of Lim et al. (U.S. Pub. 2002/0171083).

In re claims 1, 6, 11 and 16, AAPA discloses a method for manufacturing an image sensor comprising (See Background Art on pages 1-4 and FIG. 1 of this application):

- providing a semiconductor substrate (FIG. 1, 102);
- forming a pixel control circuitry (FIG. 1, 104) on the substrate;
- forming dielectric layers (FIG. 1, 106) on the substrate;
- forming interconnects (FIG. 1, 108) in the dielectric layers in contact with the pixel control circuitry;
- forming pixel electrodes (FIG. 1, 120, 122) in contact with the interconnects, the pixel electrodes of a material selected from a group consisting of a conductive semiconductor material and a conductive metal;
- forming an intrinsic layer (i-layer) (FIG. 1, 126) over the pixel electrodes;

forming a i-layer covering layer over the i-layer of a material selected from a group consisting of a p-doped material (FIG. 1, 128), an n-doped material (FIG. 1, 124', 124''), and a transparent conductive material; and

forming a transparent contact layer (FIG. 1, 130) over the i-layer covering layer and the interconnects, the transparent contact layer of a material selected from a group consisting of a transparent conductive material.

In re claims 3, 8, 13 and 18, AAPA disclose forming a pixel covering layer formed into first (FIG. 1, 124') and second (FIG. 1, 124'') pixel covering layer portions over the pixel electrodes, the pixel covering layer of a material selected from a group consisting of an n-doped material and a p-doped material.

In re claims 5, 10, 15 and 20, AAPA discloses forming the i-layer covering layer (FIG. 1, 124', 124'', 128) wherein the i-layer covering layer is distal from the interconnects; and forming the transparent contact layer (FIG. 1, 130) wherein the transparent contact is in contact with the interconnects (FIG. 1, 132, 108).

AAPA fails to disclose forming a gap in the i-layer between the pixel electrodes as recited in present claims 1-4, 6-9, 11-14 and 16-19.

Lim discloses providing a substrate (FIGS. 5a-g, 100); forming pixel electrodes (FIGS. 5a-g, 103); forming an intrinsic layer (i-layer) (FIGS. 5a-g, 111) over the pixel electrodes such that there is a gap (FIG. 5a-g, J) in the i-layer; forming an i-layer covering layer (FIGS. 5a-g, 125) over the i-layer; and forming a transparent contact layer over the i-layer covering layer (pages 3-4, paragraphs [0044]-[0051]). Since there are more than one device provided on the substrate and each device having a pixel electrode,

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the gap as disclosed by Lim inherently located in the i-layer between the pixel electrodes, the pixel covering layer portions, and the i-layer covering layer portions. It would have been obvious to one of ordinary skill in the art of making semiconductor devices to combine the teaching of AAPA and Lim to enable the gap in the i-layer between the pixel electrodes of AAPA to be formed and furthermore to obtain a device which has the high picture quality and high definition (page 2, paragraph [0025]).


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khiem D Nguyen whose telephone number is (703) 306-0210. The examiner can normally be reached on Monday-Friday (8:00 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-9179 for regular communications and (703) 746-9179 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

K.N.
June 25, 2003


Olik Chaudhuri
Supervisory Patent Examiner
Technology Center 2800